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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/537,064

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS

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BRIARCLIFF MANOR, NY 10510

EXAMINER

SCIACCA, SCOTT M

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2146

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/537,064	Applicant(s) DE BUNJE ET AL.	
	Examiner Scott M. Sciacca	Art Unit 2146	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 June 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 5 and 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/1/2005</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 5-6 are objected to because of the following informalities: Claims 5-6 are made up of multiple sentences. Claim 5 contains a period in line 10 and Claim 6 contains a period in line 12. A claim should only be a single sentence.. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 3-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 3-6 are written in such a way that it would not be readily apparent to one of ordinary skill in the art what the applicant intends to claim as the invention.

Regarding Claim 3, it is unclear what is encompassed by the following recitation: "a component is schedulable when time stamped data elements from said predefined time interval of said time dependent stream of time stamped data element is available at all inputs of said component".

Regarding Claim 4, it is unclear what is encompassed by the following recitation: "checking when the time, until which data has been processed by a preceding component, is newer than the end time of said predefined time interval".

Regarding Claims 5-6, it is unclear what is encompassed by the following recitation: "determining an earliest contribution time for each possible path by subtracting from the begin time of said predefined time interval the length of each of the predefined time intervals specified for each of said subsequent components in said path".

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1 and 3-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Kaiserswerth et al. (US 6,195,701).

Regarding Claim 1, Kaiserswerth teaches a method of scheduling schedulable component in a hard real time system for processing time dependent streams of data elements (*"The present invention concerns a method and apparatus for the synchronization and the scheduling of multiple data streams as well as for the scheduling of tasks in operating systems with hard real-time requirements"* – See Col. 1, lines 8-11), where the number of schedulable components is larger than the number of available processors for processing said components (Fig. 1 shows a single CPU 12 and Fig. 2 shows a plurality of streams – **Stream 1**, **Stream 2** and **Stream 3**) and where each of said components has at least one input and one output (*"In multimedia systems*

*multiple data streams must be synchronized and scheduled for playout to, for example, a speaker 15 and a video display 14” – See Col. 2, lines 47-49) characterized in that the method comprises the steps of consecutively:*

*determining for each schedulable component the earliest time on which said component can contribute to the output of said hard real time system (“In the example given in FIG. 3, a data unit from stream 1 cannot be played out before a time mark 30 (S1Start) and it must be played out before a time mark 31 (S1End)” – See Col. 2, lines 66-67 & Col. 3, lines 1-2),*

*scheduling the schedulable component that can contribute to the output of said real time system at the total earliest time (“The trigger conditions are checked and as soon as the condition is fulfilled, the data units are played out” – See Col. 3, lines 16-17).*

Regarding Claim 3, Kaiserswerth teaches a method according to Claim 1, wherein a length of a predefined time interval is specified for each component and a component is schedulable when time stamped data elements from said predefined time interval of said time dependent stream of time stamped data element is available at all inputs of said component (*“A stream may be synchronized to one or multiple other streams or to time stamps 23 defined by an external clock” – See Col. 2, lines 52-54; “A data stream is a sequence of data units. In FIG. 3, the synchronization of two data units is illustrated. The SyncPoints are translated to time marks relative to the system which processes the received data streams” – See Col. 2, lines 61-64).*

Regarding Claim 4, Kaiserswerth teaches a method according to Claim 3, wherein the availability of said predefined time interval of said time stamped data elements is determined by defining a begin time and an end time of said predefined time interval (*"In the example given in FIG. 3, a data unit from stream 1 cannot be played out before a time mark 30 (S1Start) and it must be played out before a time mark 31 (S1End)"* – See Col. 2, lines 66-67 & Col. 3, lines 1-2) and checking when the time, until which data has been processed by a preceding component, is newer than the end time of said predefined time interval (Fig. 4 illustrates checking when the time is newer than the end of the predetermined time interval, S1End).

Regarding Claim 5, Kaiserswerth teaches a method according to Claim 3, wherein the step of determining the earliest time on which said component can contribute to the output is performed by:

identifying possible paths of subsequent components that the data elements have to be processed by in order to reach the output of said system from said component (*"In multimedia systems multiple data streams must be synchronized and scheduled for playout to, for example, a speaker 15 and a video display 14, as illustrated in FIG. 1."* – See Col. 2, lines 47-49),

determining an earliest contribution time for each possible path by subtracting from the begin time of said predefined time interval the length of each of the predefined time intervals specified for each of said subsequent components in said path (*"In the*

*example given in FIG. 3, a data unit from stream 1 cannot be played out before a time mark 30 (S1Start) and it must be played out before a time mark 31 (S1End)” – See Col. 2, lines 66-67 & Col. 3, lines 1-2),*

determining the earliest time on which said component can contribute to the output as the earliest determined contribution time (*“After SxStart and before SxEnd it is in the READY state” – See Col. 3, lines 6-7).*

Regarding Claim 6, Kaiserswerth teaches a method according to Claim 3, wherein the step of determining the earliest time on which said component can contribute to the output is performed by:

identifying a path of subsequent components that the data elements have to be processed by in order to reach the output of said system from said component (*“In multimedia systems multiple data streams must be synchronized and scheduled for payout to, for example, a speaker 15 and a video display 14, as illustrated in FIG. 1.” – See Col. 2, lines 47-49),*

determining an earliest contribution time for each possible path by subtracting from the begin time of said predefined time interval, the length of each of the predefined time intervals specified for each of said subsequent components in said path, where at least some of said predefined time intervals have been subtracted a displacement value (*“In the example given in FIG. 3, a data unit from stream 1 cannot be played out before a time mark 30 (S1Start) and it must be played out before a time mark 31 (S1End)” – See Col. 2, lines 66-67 & Col. 3, lines 1-2),*

determining the earliest time on which said component can contribute to the output as the earliest determined contribution time (*"After SxStart and before SxEnd it is in the READY state"* – See Col. 3, lines 6-7).

Regarding Claim 7, Kaiserswerth teaches a hard real time system for processing time dependent streams of data elements (*"The present invention concerns a method and apparatus for the synchronization and the scheduling of multiple data streams as well as for the scheduling of tasks in operating systems with hard real-time requirements"* – See Col. 1, lines 8-11), said system comprising a number of components and a number of processors for processing components, said number of components is larger than the number of processors (Fig. 1 shows a single CPU 12 and Fig. 2 shows a plurality of streams – **Stream 1**, **Stream 2** and **Stream 3**), each of said components having at least one input and at least one output (*"In multimedia systems multiple data streams must be synchronized and scheduled for playout to, for example, a speaker 15 and a video display 14"* – See Col. 2, lines 47-49), said system comprises means for determining for each schedulable component the earliest time on which said component can contribute to the output of said hard real time system (*"In the example given in FIG. 3, a data unit from stream 1 cannot be played out before a time mark 30 (S1Start) and it must be played out before a time mark 31 (S1End)"* – See Col. 2, lines 66-67 & Col. 3, lines 1-2), and means for scheduling the schedulable component that can contribute to the output of said real time system at the total earliest time (*"Data units*

*to be triggered at a specified time are written to the scheduler*" – See Col. 6, lines 13-15).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaiserswerth et al. (US 6,195,701) in view of Kamiya (US 2001/0026558).

Regarding Claim 2, Kaiserswerth teaches a method according to Claim 1, but does not explicitly teach the method wherein if a number of schedulable components contribute to the output of said real time system at the same total earliest time, then scheduling of said number of components is performed using push scheduling. However, Kamiya does teach scheduling components using push scheduling ("*there is provided a distributed pipeline scheduling method for a system*" – See [0031]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use push scheduling for components that contribute to the output of a real time system at the same earliest time. One would have been motivated to do so in order to provide a mechanism for dealing with components that are simultaneously in contention for the output of the real time system.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott M. Sciacca whose telephone number is (571) 270-1919. The examiner can normally be reached on Monday thru Friday, 7:30 A.M. - 5:00 P.M. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeff Pwu can be reached on (571) 272-6798. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SS



JEFFREY PWU  
SUPERVISORY PATENT EXAMINER